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IS 7170 (1989): Slotted countersunk (flat) head tapping screws (common head style) [PGD 31: Bolts, Nuts and Fasteners Accessories]



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*Indian Standard*

SLOTTED COUNTERSUNK ( FLAT ) HEAD  
TAPPING SCREWS ( COMMON HEAD STYLE )

*( First Revision )*

**भारतीय मानक**

खांचेदार शंकुखनित ( चपटे ) हेड वाले टैपिंग पेंच ( सामान्य हेड वाले )  
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**BUREAU OF INDIAN STANDARDS**  
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG  
NEW DELHI 110002

# Indian Standard

## SLOTTED COUNTERSUNK ( FLAT ) HEAD TAPPING SCREWS ( COMMON HEAD STYLE ) ( First Revision )

### NATIONAL FOREWORD

This Indian Standard ( First Revision ) which is identical with ISO 1482 : 1983 'Slotted countersunk ( flat ) head tapping screws ( common head style )' issued by the International Organization for Standardization ( ISO ) was adopted by the Bureau of Indian Standards on 3 March 1989 on the recommendation of the Bolts, Nuts and Fasteners Accessories Sectional Committee ( EDC 27 ) and approval of the Mechanical Engineering Division Council.

The original version of this standard IS 7170 : 1974 'Specification for slotted countersunk ( flat ) head tapping 'screws' was based on ISO/R 1482 : 1970 'Slotted countersunk ( flat ) head tapping screws' issued by ISO. The revision has been made by adoption of the revised ISO standard—ISO 1482 : 1983. The following major changes have been made in this revision:

- a) Countersunk angle has been changed from 80° to 90°;
- b) Types AB and B have been re-designated as types C and E respectively;
- c) Screw size numbers have been dispensed with and screw sizes are re-designated by the nominal diameters prefixed with letters ST. The following table gives old screw size numbers, with the corresponding new size designations:

<i>Screw Size No. as per IS 7170 : 1974</i>	<i>Corresponding Sizes in this Revision</i>	<i>Screw Size No. as per IS 7170 : 1974</i>	<i>Corresponding Sizes in this Revision</i>
(0)	Not covered	(7)	Not covered
(1)	Not covered	8	ST 4·2
2	ST 2·2	10	ST 4·8
(3)	Not covered	(12)	ST 5·5
4	ST 2·9	14	ST 6·3
(5)	Not covered	(16)	ST 8
6	ST 3·5	Not covered	ST 9·5

- d) Dimensions have been rationalized.

Additional requirements supplementing specifications covered in ISO 1482 : 1983 have been given in the National Annex.

In the adopted standard, certain terminology and conventions are not identical with those used in Indian Standards, attention is specially drawn to the following:

- a) Wherever the words 'International Standard' appear, referring to this standard, they should be read as 'Indian Standard'.
- b) Comma ( , ) has been used as a decimal marker while in Indian Standards the current practice is to use point ( . ) as the decimal marker.

## CROSS REFERENCES

<i>International Standard</i>	<i>Indian Standard</i>	<i>Degree of Correspondence</i>
ISO 225 : 1983 Fasteners — Bolts, screws, studs and nuts — Symbols and designation of dimensions	IS 8536 : 1987 Fasteners — Bolts, screws, studs and nuts — Symbols and designation of dimensions ( <i>first revision</i> )	Identical
ISO 1478 : 1983 Tapping screws thread	IS 5957 : 1989 Dimensions of screws for thread forming tapping screws ( <i>first revision</i> )	Identical
ISO 2702 : 1974 Heat-treated steel tapping screws — Mechanical properties	IS 7178 : 1989 Technical supply conditions for tapping screws ( <i>second revision</i> )	Related
ISO 3269 : 1988* Fasteners — Acceptance inspection	IS 2614 : 1969† Method for sampling of fasteners ( <i>first revision</i> )	Related
ISO 4042‡ Threaded components — Electroplated coatings components	IS 1367 (Part 11)‡ Technical supply conditions for threaded fasteners: Part 11 Electroplated coatings	Would be identical
ISO 4759/1 : 1978 Tolerances for fasteners, Part 1 Bolts, screws and nuts with thread diameters $\geq 1.6$ and $\leq 150$ mm and product grades A, B and C	IS 1367 ( Part 2 ) : 1984 Technical supply conditions for threaded steel fasteners: Part 2 Product grades and tolerances ( <i>second revision</i> )	Technically equivalent
ISO 7721 : 1983 Countersunk head screws — Head configuration and gauging	IS 11362 : 1985 Head configuration and gauging of countersunk head screws	Identical

## ALTERATION

In *Clause 5* the designation of slotted countersunk ( flat ) head tapping screw may be read as:

'Tapping screw IS 7170 — ISO 1482 — ST3, 5 × 16-C'

*in place of*

'Tapping screw ISO 1482 — ST3, 5 × 16-C'.

\*Was in draft stage in 1983, first edition published in 1984, and second edition in 1988.

†At present in draft stage.

‡The provisions of this Indian Standard are applicable.

## 1 Scope and field of application

This International Standard specifies the characteristics of slotted countersunk (flat) head tapping screws with thread sizes from ST 2,2 to ST 9,5 inclusive.

## 2 References

ISO 225, *Fasteners — Bolts, screws, studs and nuts — Symbols and designations of dimensions.*

ISO 1478, *Tapping screws thread.*

ISO 2702, *Heat-treated steel tapping screws — Mechanical properties.*

ISO 3269, *Fasteners — Acceptance inspection.*<sup>1)</sup>

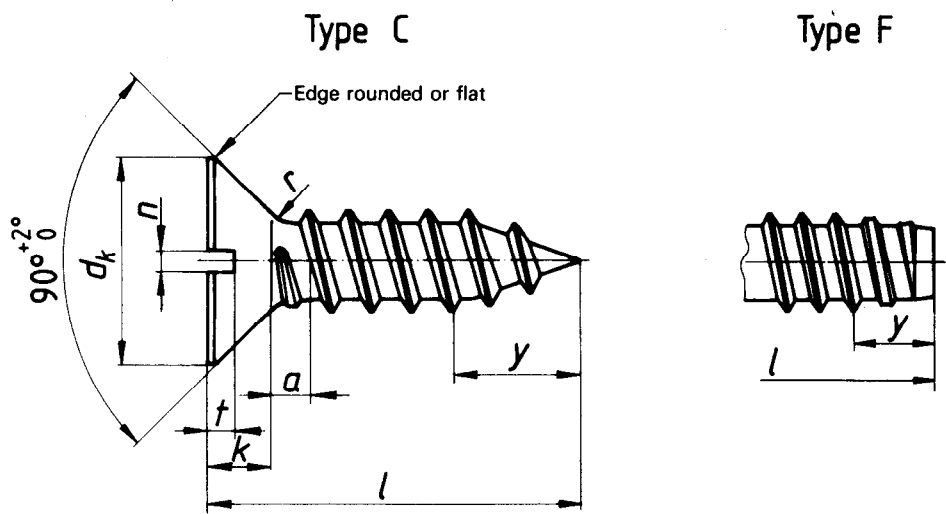
ISO 4042, *Threaded components — Electroplated coatings components.*<sup>1)</sup>

ISO 4759/1, *Tolerances for fasteners — Part 1: Bolts, screws and nuts with thread diameters  $> 1,6$  and  $< 150$  mm and product grades A, B and C.*

ISO 7721, *Countersunk head screws — Head configurations and gauging.*

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1) At present at the stage of draft.



Dimensions in millimetres

Thread size			ST 2,2	ST 2,9	ST 3,5	ST 4,2	ST 4,8	ST 5,5	ST 6,3	ST 8	ST 9,5	
<i>p</i> <sup>1)</sup>			0,8	1,1	1,3	1,4	1,6	1,8	1,8	2,1	2,1	
<i>a</i> <sup>2)</sup> max.			0,8	1,1	1,3	1,4	1,6	1,8	1,8	2,1	2,1	
<i>d<sub>k</sub></i>	theoretical <sup>3)</sup>	max.	4,4	6,3	8,2	9,4	10,4	11,5	12,6	17,3	20	
		max.	3,8	5,5	7,3	8,4	9,3	10,3	11,3	15,8	18,3	
	actual	min.	3,5	5,2	6,9	8	8,9	9,9	10,9	15,4	17,8	
<i>k</i> max.			1,1	1,7	2,35	2,6	2,8	3	3,15	4,65	5,25	
<i>n</i>	nom.		0,5	0,8	1	1,2	1,2	1,6	1,6	2	2,5	
	min.		0,56	0,86	1,06	1,26	1,26	1,66	1,66	2,06	2,56	
	max.		0,7	1	1,2	1,51	1,51	1,91	1,91	2,31	2,81	
<i>r</i> max.			0,8	1,2	1,4	1,6	2	2,2	2,4	3,2	4	
<i>t</i>	min.		0,4	0,6	0,9	1	1,1	1,1	1,2	1,8	2	
	max.		0,6	0,85	1,2	1,3	1,4	1,5	1,6	2,3	2 6	
<i>y</i> ref. <sup>4)</sup>			Type C	2	2,6	3,2	3,7	4,3	5	6	7,5	8
			Type F	1,6	2,1	2,5	2,8	3,2	3,6	3,6	4,2	4,2
<i>j</i> <sup>5)</sup>												
nom.	Type C		Type F									
	min.	max.	min.	max.								
4,5	3,7	5,3	3,7	4,5		—	—	—	—	—	—	
6,5	5,7	7,3	5,7	6,5			—	—	—	—	—	
9,5	8,7	10,3	8,7	9,5					—	—	—	
13	12,2	13,8	12,2	13						—	—	
16	15,2	16,8	15,2	16			Range				—	
19	18,2	19,8	18,2	19				of				
22	21,2	22,8	20,7	22				commercial				
25	24,2	25,8	23,7	25				lengths				
32	30,7	33,3	30,7	32								
38	36,7	39,3	36,7	38								
45	43,7	46,3	43,5	45								
50	48,7	51,3	48,5	50								

1) P = pitch of the thread.  
 2) Distance from the underside of the head to the first major diameter of the thread within specified limits.  
 3) See ISO 7721.  
 4) Length of incomplete thread.  
 5) Sizes with lengths marked with a dash (—) in the table shall not be manufactured.



#### 4 Specifications and reference International Standards

Material	Steel, according to ISO 2702
Thread	According to ISO 1478
Mechanical properties	According to ISO 2702
Tolerances	Product grade A
	International Standard ISO 4759/1
Finish	Plain Requirements for electroplating are covered in ISO 4042. If different electroplating requirements are desired or if requirements are needed for other finishes, they should be negotiated between customer and supplier.
Acceptability	For acceptance procedure see ISO 3269.

#### 5 Designation

Example for the designation of a slotted countersunk (flat) head tapping screw with thread size ST 3,5, nominal length  $l = 16$  mm and cone end type C.

Tapping screw ISO 1482 - ST 3,5 × 16 - C

**NATIONAL ANNEX**

In addition to the requirements covered in the standard, the self tapping screws manufactured to IS 7170 : 1989 shall also comply with the following.

**GENERAL REQUIREMENTS**

In respect of such other requirements not covered in this standard, the tapping screws shall conform to IS 7178 : 1989.

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